Analysis of urban resilience in Mashhad Ab-o-Bargh neighborhood

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Abstract: The trend of urbanization in the world has always been growing. Increasing population growth in urban areas in the future has always faced threats, one of the main of which is natural disasters. In recent decades, approaches to dealing with natural disasters have introduced a new concept called urban resilience. Given that several conceptual frameworks for resilience analysis have been proposed by various researchers by evaluating and comparing resilience conceptual models, this study sought to provide a citation-based conceptual model for resilience analysis and measurement in the physical scale on a neighborhood scale. This article is practical and descriptive-analytical and the method of collecting its information has been library and field. A single-variable t-test has also been used to collect and classify information and analyze data. The results show that among the studied components (land use, access network, housing and form, shape, pattern and size) the housing component is higher than the average of the test (number 3) And it has the greatest impact on the physical resilience of the neighborhood of water and electricity against natural disasters.

Keywords:Resilience, natural disasters, physical components, Mashhad Ab-o-Bargh electricity neighborhood.

Introduction

Cities are complex and interdependent systems that are vulnerable to threats from natural and man-made disasters. Physical and architectural features, high densities, population growth, compact and interconnected infrastructure systems, and unplanned urban development have added to the high vulnerability of cities to natural disaster hazards. As natural disasters cause extensive damage every year, especially in developing countries, the available evidence suggests that all types of natural disasters continue to

increase in intensity and frequency, so that the number of people affected, From 700 million in the 1970s to 2 billion in the 1990s, economic losses have increased dramatically (Tipple, 2005, citing Mohammadi Serin Dizaj, 2016). Meanwhile, Iran is one of the countries that are very vulnerable to natural disasters in terms of geographical and geological conditions (Farzad Behtash et al., 2013). Because region 9 with an area of 4473 hectares (Statistics Center of Iran, 2016). It is the third largest area and development side of Mashhad city. In fact, it is one of the most heterogeneous areas in terms of physical characteristics and stability (Farm Far and Roshan Rudi, 2015) and also in terms of geology and location on the fault line. It is considered to be the most dangerous area of Mashhad Municipality (Nasrabadi, 2015) and will usually have its effect in Ab-o-Bargh neighborhood, which includes a comprehensive sample of new spaces and textures in Mashhad.

Research Methods

The present study is applied in terms of purpose and descriptive-analytical in terms of research methods. Also, in order to obtain the required information, with the help of information collection methods, we started collecting information from documentary (study of documents and master plans) and field (observation, photography, questionnaire and interview) and then according to The population of the study area, which in the last population and housing census in 2016 was equal to 50094 people, with the help of Delphi method, 32 people were selected for questioning, which with the help of statistical method of single-variable t-test have paid.

Discussion

To evaluate the resilience of the water and electricity neighborhood, land use criteria, access network, housing and form, shape, pattern and size have been selected for the desired process. To examine the most effective physical component of resilience against natural disasters in the neighborhood of water and electricity, due to the normality of the variables, a single-variable t-test is used and the average of these variables is compared with the number 3. Also, in order to integrate the indicators in this research, the average total distance method of optimal resilience limit has been used. In this method, the numerical value of each index is expressed as a percentage so that the process of normalizing the indicators is not required. Determining the resilience status requires defining the optimal limit for each indicator

(Dadashpour and Adeli, 2015). Because cities are the focus of population and human resources, they face significant and widespread damage from risk factors. Inadequate condition of the city body, such as inefficient road network, lack of proper distribution and distribution of open spaces, high urban density, incompatibility of uses and dilapidated buildings are effective in increasing vulnerability and thus damages caused by accidents and increasing city recovery time. In this study, 4 land use criteria, access network, housing and form, pattern shape and size have been studied. Housing criteria and related sub-criteria are more vulnerable in the first place. Also, among the effective factors in reducing resilience The neighborhoods in order of priority are: grain size, building age, material type and ratio of length to width of parts. The houses built in the neighborhood, especially in the southern part, are weak and difficult in terms of construction materials and construction methods. Effective. Also, the neighborhood is very vulnerable in terms of the area of residential parts, which is called granulation.

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